

ASPHALT KINEMATIC VISCOSITY BATH



Asphalt Kinematic Viscosity Bath TT-2170

Asphalt Kinematic Viscosity Bath TT-2170 complies with the ASTM D2170 Standard Test Method for Kinematic Viscosity of Asphalts (Bitumens).

Asphalt Kinematic Viscosity Bath TT-2170 is utilized for determining the viscosity of asphalt, road oils, and distillation residues of liquid asphalts, all at 60°C, and asphalt cements at 135°C within the range from 6 to 100,000 cSt.

APPLICATIONS

The primary application of the Asphalt Kinematic Viscosity Bath TT-2170 is to determine the kinematic viscosity of asphalt binders (bitumens), road oils, and distillation residues of liquid asphalts. In compliance with the ASTM D2170 standard, this test is performed at specific high temperatures, typically 60°C and 135°C, to ensure the material has the correct flow characteristics for its intended application. This is a fundamental test for grading asphalt and predicting its performance during mixing, pumping, and application.

Key Industries

- **Asphalt Production & Petroleum Refining:** This is an essential quality control instrument for producers of asphalt binders. Refineries must test their products to certify that they meet specific performance grades (PG) or viscosity grades required by construction standards.
- **Road Construction & Paving:** Paving contractors and hot-mix asphalt (HMA) plant operators rely on this test to verify the quality of the asphalt binder they receive. The viscosity directly affects the workability of the asphalt mix and the quality of the final road surface.
- **Civil Engineering & Materials Testing Laboratories:** Government agencies (like the Department of Transportation), as well as independent commercial labs, use this apparatus for quality assurance and compliance testing on public and private construction projects to ensure the asphalt meets all engineering specifications.

FEATURES

- Double-layer constant temperature bath: The inner layer consists of a hard glass cylinder measuring $\phi 300 \times 300 \text{mm}$, while the outer layer is constructed of an insulation plexiglass tube measuring $\phi 360 \times 285 \text{mm}$. An air insulation layer is situated between the inner and outer layers. The bathtub cover features four holes, each designated for placing the capillary viscometer clip and bakelite cover. Three adjustment screws are included on the clamp to ensure the vertical alignment of the capillary viscometer.
- Lighting utilizes a 220V 16W 2D fluorescent lamp, providing clear visibility for reading the capillary viscometer.
- Temperature controller:
 - Temperature sensor: Industrial platinum resistance with an index number of Pt100.
 - Temperature controller: Intelligent temperature controller featuring a temperature control accuracy of $\pm 0.1^\circ\text{C}$.
 - Heating system: Equipped with dual electric heating tubes, featuring 1000W and 600W capacities. The 1000W auxiliary heating is deactivated, allowing only the 600W temperature control heating to operate, ensuring bath temperature stability.
 - Stirring system: The electric mixer utilizes a single-phase asynchronous motor. The electric shaft and stirring shaft are separated by epoxy rods, ensuring the normal operation of the motor is unaffected.

TECHNICAL SPECIFICATIONS

1. Power: AC220V $\pm 10\%$, 50Hz. (110V also available)
2. Bath heating power: Two steps, 1000W (Auxiliary heating) and 600W (temperature controlling heat).
3. Bath temperature: Room temperature to 150.0°C .
4. Temperature accuracy: $\pm 0.1^\circ\text{C}$.
5. Thermometers: Subdivision: 0.1°C , Range: $100 \sim 150^\circ\text{C}$.

6. Bath volume: 20L.
7. Samples: Four.
8. Stirring motor: Power: 6W, RPM: 1200r/min.
9. Ambient temperature: -10°C to +35°C.
10. Relative humidity: Less than 85%.
11. Sensor: Pt100.
12. Total consumption: Less than 1800W.
13. Capillary viscometers: Cannon Fenske opaque viscometers, sizes: 200, 300, 350, 400, 450, 500, 600 (7 pieces).



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